PROPERTY OF TEST EQUIPMENT
CALIBRATION AND REPAIR DEPT.

FLUKE®

Instruction Sheet

Model 801-600

AC Current Transformer

INTRODUCTION

The Model 801600 (Figure 1) is a clamp-on current transformer designed to extend the current measuring capability of an ac current meter up to 600 amperes. A clamp-on coil designed into the probe allows measurements to be made without breaking the circuit under test. This coil serves as the secondary of a 1000:1 transformer. The current carrying conductor being measured serves as the primary. Because of a high effeciency, quadrature type of winding, wire size and location of the wire within the transformer jaws will not affect the accuracy of the current measurement.

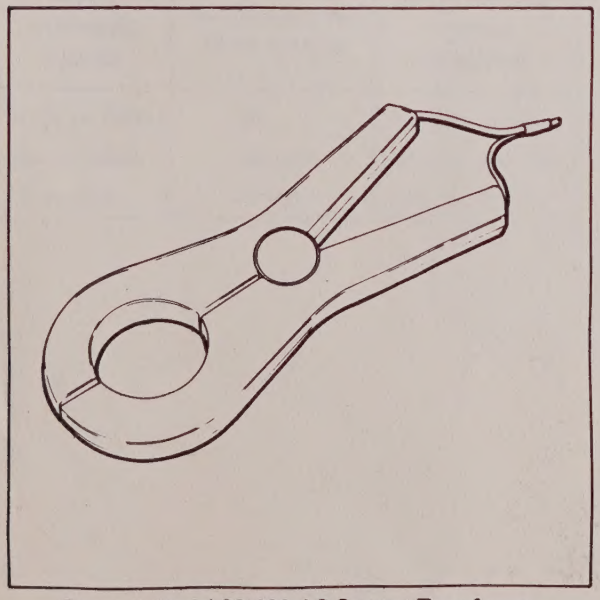

Figure 1. Model 801600 AC Current Transformer

SPECIFICATIONS

Current Range:	2A-600A
Accuracy:	
30 to 100 Hz	±3%
100 Hz to 10 kHz	±1% (typical)
Frequency Response:	30 Hz - 1 kHz
Division Ratio:	1000:1
Insulation:	5 kV
Maximum Conductor Size:	2" diameter

MEASUREMENT CONSIDERATIONS

The following paragraphs contain measurement information that should be considered before attempting to use the probe.

Current Meter Compatibility

The 801600 is compatible with any ac current meter capable of reading a current equal to 1/1000 of the current to be measured. To take full advantage of the probe's accuracy a DMM accuracy of ±0.5% of reading is recommended. A voltmeter fitted with an external shunt will qualify as a suitable current meter. However, to ensure the probe's accuracy the shunt should be selected for a burden voltage (I-R drop at rated current) of not more than 200 mV. This requirement is met on Fluke DMM's when using a current range of 20 mA or greater.

When making a measurement the current carrying conductor is not broken, and remains electrically isolated from the

P/N 481952 REV 1 8/78 REV 2 4/79

PROPERTY OF TEXT LIBRARY
CALIBRATION AND REPAIR DEPT.

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_09819

current meter input terminals. As a result the current meter's low-input terminal may be either floated or grounded.

Meter Readings

When the 801600 is connected to a compatible current meter and clamped around a single current carrying conductor the meter will provide a current reading. The reading will be 1000X smaller than the actual input current. For example, a 5 ampere current will cause the meter to read 5 milliamperes. See Table 1.

If the probe is clamped around two wires carrying current in the same direction, the sum will be read. Reversing one of the wires causes the difference to be read. For increased sensitivity, one or more loops can be wrapped around the probe. Sensitivity is increased by the number of loops.

OPERATION

Use the following procedure to operate the 801600:

1. Select and energize a compatible ac current meter.
2. Select the appropriate current range using Table 1.
3. Clamp the probe around the desired current carrying conductor.
4. Multiply meter reading by 1000.

Table 1. Range Selection Guide

INPUT CURRENT RANGE	RECOMMENDED DMM RANGE	EQUIVALENT METER READING
200A to 600A	2A	0.200 to 0.600A
20A to 200A	200 mA	20.0 to 200 mA
2A to 20A	20 mA	2.00 to 20 mA

THEORY OF OPERATION

The 801600 Current Transformer is a clamp-on probe designed to extend the current measurement range of an ac current meter up to 600 amperes. Electrically, the probe is a 1000 turn coil, as shown in Figure 2, and is equivalent to a transformer's secondary winding. The current carrying conductor serves as the primary when inserted into the transformer jaws. Current from the primary is coupled to the secondary, attenuated 1000X, and used to drive the input of an ac current meter.

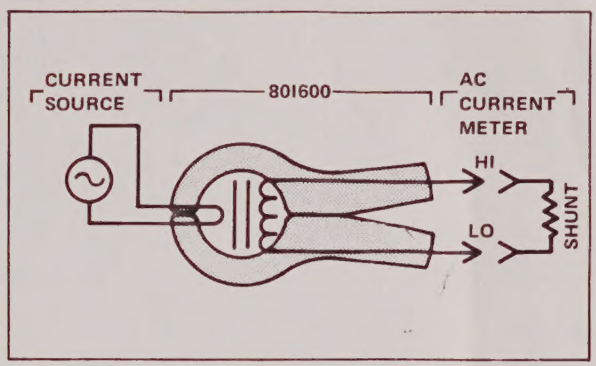

Figure 2. Simplified Circuit Diagram

MAINTENANCE

Performance Test

Verify the probe accuracy by measuring the output of a 10A ±0.2%, 60 Hz current source. When used with a compatible voltmeter, the probe should measure the source current with ±3% accuracy. No calibration adjustments are provided.

Cleaning

Use a soft cloth dampened in a mild solution of detergent and water to clean the 801600. Do not use solvents unless absolutely necessary.

www.manualsplus.com
1015473